

CLAIMS:

What is claimed is:

1. A foldable wireless electrical device, comprising:

a first portion;

a second portion , including an antenna portion; and

a shaft, extended between two adjacent ends of the first portion and the second

5 portion, for pivotally connecting the first portion and the second portion, and linkage with the first portion, the shaft forming at least one metal section, so that the metal section electrically couples to the antenna portion when the first portion pivots to a predetermined position with respect to the second portion.

2. The foldable wireless electrical device as claimed in claim 1, wherein the first portion is pivotable with respect to the second portion between a closed position and an open position, and the predetermined position is the closed position.

3. The foldable wireless electrical device as claimed in claim 1, wherein the shaft forms a first metal section and a second metal section spaced from the first metal section, and the first portion is pivotable with respect to the second portion between a closed position and an open position, so that when the first portion is pivoted to the closed position, the antenna
5 portion electrically couples to the first metal section, and when the first portion is pivoted to the open position, the antenna portion electrically couples to the second metal section.

4. The foldable wireless electrical device as claimed in claim 1, wherein the first portion includes a first circuit board, the second portion includes a second circuit board and a base fixed to one end of the second circuit board, a top face of the base defines a recess for receiving the shaft and pivotally connected to two ends of the shaft, and one end of the
5 second circuit board is fixed to the shaft to make the first circuit board pivotable with respect to the second circuit board.

5. The foldable wireless electrical device as claimed in claim 4, wherein the antenna portion is routed on a surface of the base and one end thereof extends to one end of the recess to form a first coupling portion, and the metal section extends along a length of the shaft, and one end thereof adjacent to the first coupling portion forms a second coupling portion, so as to make the first coupling portion move to a position facing to the second coupling portion for electrically coupling to the second coupling portion when the first portion is pivoted to the predetermined position.

6. The foldable wireless electrical device as claimed in claim 5, wherein when the first portion is pivoted to the predetermined position, a space exists between the first coupling portion and the second coupling portion, and forms a capacitive coupling to obtain an electrical coupling.

7. The foldable wireless electrical device as claimed in claim 5, wherein at least one projected point is respectively extended outward from at least one of the first coupling portion and the second coupling portion, so that when the first portion is pivoted to the predetermined position, the first coupling portion and the second coupling portion are electrically connected to each other by the projected point.

8. The foldable wireless electrical device as claimed in claim 1, wherein the foldable wireless electrical device is a foldable mobile phone.

9. A foldable wireless electrical device, comprising:
a first portion, including a metal section;
a second portion, including an antenna portion; and
a shaft, extended between two adjacent ends of the first portion and the second portion, for pivotally connecting the first portion and the second portion, and linkage with the first portion, the shaft forming a second coupling portion to electrically connect to the metal section, so that the metal section electrically couples to the antenna portion by the coupling

portion when the first portion pivots to a predetermined position with respect to the second portion.

10. The foldable wireless electrical device as claimed in claim 9, wherein the first portion is pivotable with respect to the second portion between a closed position and an open position, and the predetermined position is the closed position.

11. The foldable wireless electrical device as claimed in claim 10, wherein the first portion includes a first circuit board and the metal section is routed on the first circuit board, the second portion includes a second circuit board and a base fixed to one end of the second circuit board, the antenna portion is provided on the second circuit board, a top face of
5 the base defines a recess for receiving the shaft and pivotally connected to two ends of the shaft, and one end of the first circuit board is fixed to the shaft to make the first circuit board be pivotable with respect to the second circuit board.

12. The foldable wireless electrical device as claimed in claim 11, wherein one end of the recess of the base forms a first coupling portion to electrically couple to the antenna portion, and one end of the shaft faced to the first coupling portion forms a second coupling portion, so that when the first circuit board pivots to the closed position, the first
5 coupling portion and the second coupling portion are faced to each other and obtain an electrical coupling.

13. The foldable wireless electrical device as claimed in claim 12, wherein when the first circuit board is pivoted to the closed position, a space exists between the first coupling portion and the second coupling portion, and forms a capacitive coupling to obtain an electrically coupling.

14. The foldable wireless electrical device as claimed in claim 12, wherein at least one projected point is respectively extended outward from at least one of the first coupling portion and the second coupling portion, so that when the first circuit board is pivoted to the

closed position, the first coupling portion and the second coupling portion are electrically
5 connected to each other by the projected point.

15. The foldable wireless electrical device as claimed in claim 11, wherein one end of the recess of the base forms a first coupling portion to electrically connect to the antenna portion, and the first circuit board forms a first metal section and a second metal section spaced from the first metal section, and the shaft forms a second coupling portion
5 electrically connected to the first metal section and a third coupling portion spaced apart from the second coupling portion and electrically connected to the second metal section, so that when the first circuit board is pivoted to the open position, the first coupling portion and the second coupling portion are faced to each other and produce an electrical coupling, and when the first circuit board is pivoted to the closed position, the first coupling portion and the third
10 coupling portion are faced to each other and produce an electrical coupling.

16. The foldable wireless electrical device as claimed in claim 15, wherein a space exists between the first coupling portion and the second coupling portion and the third coupling portion, and forms a capacitive coupling to obtain an electrical coupling.

17. The foldable wireless electrical device as claimed in claim 15, wherein at least one projected point is extended outward from at least one of the first coupling portion, the second coupling portion, and the third coupling portion, respectively, so that the first coupling portion, the second coupling portion and the third coupling portion are electrically connected
5 to one other by the projected point.

18. The foldable wireless electrical device as claimed in claim 9, wherein the foldable wireless electrical device is a foldable mobile phone.

19. A pivotable device, provided on a foldable wireless electrical device, and for pivotally connecting a first portion and a second portion of the electrical device, the pivotable device comprising:

5 a base, disposed on one end of the second portion;
an antenna portion, routed on the base; and
a shaft, pivotally disposed on the base, and provided for fixing the first portion, for
pivotally connecting the first portion and the second portion, the shaft forming at least one
metal section, so that the metal section electrically couples to the antenna portion by the
coupling portion when the first portion pivots to a predetermined position with respect to the
10 second portion.

20. The pivotable device as claimed in claim 19, wherein the first portion of the
electrical device is pivotable with respect to the second portion between a closed position and
an open position, and the predetermined position is the closed position.

21. The pivotable device as claimed in claim 20, wherein a top face of the base
defines a recess for receiving the shaft and pivotally connected to two ends of the shaft, and
one end of the first portion is fixed to the shaft to make the first portion pivot with respect to
the second portion between a closed position and an open position.

22. The pivotable device as claimed in claim 21, wherein the antenna portion is
routed on a surface of the base and one end thereof extends to one end of the recess to form a
first coupling portion, and the metal section extends along a length of the shaft, and one end
thereof adjacent to the first coupling portion forms a second coupling portion, so as that the
5 first coupling portion faces the second coupling portion and gets an electrical coupling when
the first circuit board is pivoted to the closed position.

23. The pivotable device as claimed in claim 22, wherein when the first portion is
pivoted to the closed position, a space exists between the first coupling portion and the
second coupling portion, and forms a capacitive coupling to obtain an electrical coupling.

24. The pivotable device as claimed in claim 22, wherein at least one projected
point is respectively extended outward from at least one of the first coupling portion and the

second coupling portion, so that when the first portion is pivoted to the closed position, the first coupling portion and the second coupling portion are electrically connected to each other
5 by the projected point.

25. The pivotable device as claimed in claim 21, wherein the antenna portion is routed on a surface of the base, and one end thereof extends to one end of the recess of the base to form a first coupling portion, and the shaft forms a first metal section and a second metal section spaced from the first metal section, and one end of each of the first metal
5 section and the second metal section which are faced to the first coupling portion form a second coupling portion and a third coupling portion, respectively, so that when the first portion is pivoted to the closed position, the first coupling portion and the second coupling portion are faced to each other and produce an electrical coupling, and when the first portion is pivoted to the open position, the first coupling portion and the third coupling portion are
10 faced to each other and produce an electrical coupling.

26. The pivotable device as claimed in claim 25, wherein a space exists between the first coupling portion and the second coupling portion and the third coupling portion, and forms a capacitive coupling to obtain an electrical coupling.

27. The pivotable device as claimed in claim 25, wherein at least one projected point is extended outward from at least one of the first coupling portion, the second coupling portion, and the third coupling portion, respectively, so that the first coupling portion, the second coupling portion and the third coupling portion are electrically connected to one other
5 by the projected point.

28. A pivotable device, being provided on a foldable wireless electrical device, and for pivotally connecting a first portion and a second portion of the electrical device, the first portion including at least one metal section, the second portion including an antenna portion, the pivotable device comprising:

- 5 a base, being disposed on one end of the second portion and having a first coupling portion thereon for electrically connecting to the antenna portion; and
- a shaft, pivotally disposed on the base, and provided for fixing the first portion, and for pivotally connecting the first portion and the second portion, the shaft forming at least one second coupling portion for electrically connecting to the metal section, so that the metal
- 10 section electrically couples to the antenna portion when the first portion pivots to a predetermined position with respect to the second portion.

29. The pivotable device as claimed in claim 28, wherein the first portion of the electrical device is pivotable with respect to the second portion between a closed position and an open position, and the predetermined position is the closed position.

30. The pivotable device as claimed in claim 29, wherein a top face of the base defines a recess for receiving the shaft and pivotally connected to two ends of the shaft, and one end of the first portion is fixed to the shaft to make the first portion pivot with respect to the second portion between a closed position and an open position.

31. The pivotable device as claimed in claim 30, wherein one end of the recess of the base forms a first coupling portion to electrically connect to the antenna portion, and one end of the shaft faced to the first coupling portion forms a second coupling portion, so that the first coupling portion faces the second coupling portion and gets an electrical coupling

5 when the first circuit board is pivoted to the closed position.

32. The pivotable device as claimed in claim 31, wherein when the first portion is pivoted to the closed position, a space exists between the first coupling portion and the second coupling portion, and forms a capacitive coupling to obtain an electrical coupling.

33. The pivotable device as claimed in claim 31, wherein at least one projected point is respectively extended outward from at least one of the first coupling portion and the second coupling portion, so that when the first portion is pivoted to the closed position, the

first coupling portion and the second coupling portion are electrically connected to each other
5 by the projected point.

34. The pivotable device as claimed in claim 30, wherein one end of the recess of the base forms a first coupling portion to electrically connect the antenna portion, and the first portion includes a first metal section and a second metal section spaced apart from each other, and the shaft forms a second coupling portion to electrically connect to the first metal section
5 and a third coupling portion to electrically connect to the second metal section and spaced from the second coupling portion, so that when the first portion is pivoted to the opened position, the first coupling portion and the second coupling portion are faced to each other and produce an electrical coupling therebetween, and when the first portion is pivoted to the closed position, the first coupling portion and the third coupling portion are faced to each
10 other and produce an electrical coupling therebetween.

35. The pivotable device as claimed in claim 34, wherein a space exists between the first coupling portion, the second coupling portion and the third coupling portion, and forms a capacitive coupling to obtain an electrical coupling.

36. The pivotable device as claimed in claim 34, wherein at least one projected point is extended outward from at least one of the first coupling portion, the second coupling portion, and the third coupling portion, respectively, so that the first coupling portion, the second coupling portion and the third coupling portion are electrically connected to one other
5 by the projected point.